

CLAIMS:

1. A method of message discard for segmented message traffic in an aggregated message traffic stream of a communications network, the aggregated message traffic stream comprising a plurality of constituent message traffic streams thereof, each constituent message traffic stream having segmented message traffic which comprises segmented messages composed of formative segmented message units thereof, the said method comprising the steps of:

(a) maintaining, for each said constituent message traffic stream, an indication of whether a currently received segmented message unit of each said constituent message traffic stream is to be subjected to message discard;

(b) determining, upon each arrival of a segmented message unit of the aggregated message traffic stream, whether a currently received segmented message unit of the constituent message traffic stream denotes a delineation between two segmented messages thereof;

(c) determining whether a current condition of traffic congestion exists as to the aggregated message traffic stream; and

(d) utilizing the indication of step (a), the determination of step (b) and the determination of step (c) in determining whether a next to be received segmented message unit of the constituent message traffic stream is to be subjected to message discard.

2. The method according to Claim 1, wherein the determination of whether the next to be received segmented message unit of the said constituent traffic stream is to be subjected to message discard is represented by at least one parameter that is stored as the indication of the said step (a) prior to arrival of the next to be received segmented message unit of the constituent message traffic system.

3. The method according to Claim 2, wherein the indication of step (a) is numerically represented by a single bit value.

4. The method according to Claim 3, wherein the indication of step (a) has a value of zero to denote that the currently received segmented message unit is not to be subjected to message discard and a value of 1 to denote that the currently received segmented message unit is to be subjected to message discard.
5. The method according to Claim 4, wherein the determination of whether the next to be received segmented message unit of the said constituent traffic stream is to be subjected to message discard is arrived at on the basis of whether the currently received segmented message unit of the same said constituent traffic stream is subjected to any one of:
 - (i) message discard in a context of traffic congestion;
 - (ii) message discard in a context of no traffic congestion but where the currently received segmented message unit is comprised in a segmented message that has not completed its transmission; and
 - (iii) no message discard in a context of traffic congestion but where the currently received segmented message unit is comprised in a segmented message that has completed its transmission.
6. The method according to Claim 5, wherein the indication of step (a) is numerically represented by two bits.
7. The method according to Claim 6, wherein one of the two bits of the indication of step (a) denotes that the currently received segmented message unit is comprised in a segmented message that has previously commenced its transmission.
8. The method according to Claim 7, wherein the aggregated message traffic stream is a virtual path and the constituent message traffic streams thereof are virtual connections.

9. The method according to Claim 8, wherein the communications network is an Asynchronous Transfer Mode ("ATM") network.
10. The method according to Claim 9, wherein the segmented messages are ATM Adaptation Layer ("AAL") packets and the segmented message units are AAL cells.
11. The method according to Claim 10, wherein the AAL packets are AAL5 packets and the AAL cells are AAL5 cells.
12. The method according to Claim 11, wherein the said delineation between two segmented messages of the constituent message traffic stream is an end of message indicator.
13. An apparatus for message discard of segmented message traffic in an aggregated message traffic stream of a communications network, the aggregated message traffic stream comprising a plurality of constituent message traffic streams thereof, each constituent message traffic stream having segmented message traffic which comprises segmented messages composed of formative segmented message units thereof, the said apparatus comprising:
 - (a) a memory for storing, for each constituent message traffic stream, an indication of whether a currently received segmented message unit of each said constituent message traffic stream is to be subjected to message discard;
 - (b) a reader for detecting, upon each arrival of a segmented message unit of the constituent message traffic stream, whether a currently received message unit of the constituent message traffic stream denotes a delineation between two segmented messages thereof; and
 - (c) a processor for determining whether a next to be received segmented message unit of the constituent message traffic stream is to be subjected to message

discard, wherein to arrive at the said determination of whether said next to be received segmented message unit is to be subjected to message discard, the processor utilizes the said indication of whether said currently received segmented message unit is to be subjected to message discard, the said detection of whether the said currently received segmented message unit denotes a delineation between said two segmented messages, and a determination of whether a current condition of traffic congestion exists as to the aggregated message traffic stream.

14. The apparatus according to Claim 13, wherein the memory further stores the detection of whether said currently received message unit denotes said delineation between said two segmented messages and the determination of whether said current condition of traffic congestion exists as to the aggregated traffic stream.

15. The apparatus according to Claim 14, wherein the determination of whether the next to be received message unit of the said constituent traffic stream is to be subjected to discard is represented by at least one parameter that is stored in said memory as the indication of whether said currently received segmented message unit is to be subjected to message discard, said parameter being stored prior to arrival of said next to be received segmented message unit.

16. The apparatus according to Claim 15, wherein the indication of whether said currently received segmented message unit is to be subjected to discard is numerically represented by a single bit value.

17. The apparatus according to Claim 16, wherein the indication of whether said currently received segmented message unit is to be subjected to discard has a value of zero to denote that the currently received segmented message unit is not to be subjected to message discard and a value of 1 to denote that the currently received segmented message unit is to be subjected to message discard.

18. The apparatus according to Claim 17, wherein the determination of whether the next to be received segmented message unit of the said constituent traffic stream is to be subjected to message discard is arrived at on the basis of whether the currently received segmented message unit of the same said constituent traffic stream is subjected to any one of:

- (i) message discard in a context of traffic congestion;
- (ii) message discard in a context of no traffic congestion but where the currently received segmented message unit is comprised in a segmented message that has not completed its transmission; and
- (iii) no message discard in a context of traffic congestion but where the currently received segmented message unit is comprised in a segmented message that has completed its transmission.

19. The apparatus according to Claim 18, wherein the indication of whether said currently received segmented message unit is to be subjected to discard is numerically represented by two bits.

20. The apparatus according to Claim 19, wherein one of the two bits of the indication of whether said currently received segmented message unit is to be subjected to discard denotes that the currently received segmented message unit is comprised in a segmented message that has previously commenced its transmission.

21. The apparatus according to Claim 20, wherein the aggregated message traffic stream is a virtual path and the constituent message traffic streams thereof are virtual connections.